**AP Stat- Chapter 7- Correlation Worksheet 7B**

**NEED: Program CORR, group HYPOCORR**

* Ungroup HYPOCORR (you should get lists EXA1, EXA2, EXB1, EXB2, etc.)
* These lists are hypothetical exam scores, the same ones from the 2.1 worksheet
* Go to CATALOG (2nd, then 0 button) and hit the “D” button, then go to DIAGNOSTIC ON, hit ENTER, then ENTER again

1. Look back at the scatterplots from section 2.1 worksheet to see the graphs for Classes A-F. Now compute the correlation for each graph, and fill in the correlation in the same table from before:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Strong** | **Moderate** | **Weak** |
| **Negative** | C | D | F |
| **Positive** | E | A | B |

1. Based on these results, what do you suspect is the largest value that a correlation coefficient can assume? What do you suspect is the smallest value?
2. What types of scatterplots have the largest correlation coefficient? Which have the smallest?
3. How does the value of the correlation relate to the *direction* of the association?
4. How does the value of the correlation relate to the *strength* of the association?
5. Make a scatterplot relating the scores from Exam G (EXG1 = x-list, EXG2 = y-list). Draw the graph below. Does there seem to be any relationship between the scores? Describe the scatterplot.
6. Calculate the correlation for Class G. Does its value surprise you? What type of relationship does *r* REALLY measure??
7. Calculate the correlation for Class G but switch the X and Y list. What is it? How does it compare to the original correlation? What does this tell you?
8. Make a scatterplot for Class H. Sketch it below. Do most of the observations seem to follow a linear pattern? Are there any exceptions?
9. Make a scatterplot for Class I. Do most of the observations seem to be scattered? Are there any exceptions?
10. Calculate the correlation for Classes H and I. Write them below. Does either of these correlations surprise you? Why?

*Class H = Class I =*

1. Remove the outlier for Class H (be sure to remove the coordinates from both the X and Y lists). Recalculate the correlation, and write it below. How has it changed?

*Class H =*

1. Remove the outlier for Class I. Recalculate the correlation, and write it below. How has it changed?

*Class I =*

1. Based on your analysis of Classes H and I, would you say that the correlation coefficient is *resistant* measure of association? Or *non-resistant*?
2. Make a scatterplot for Class J. Describe what the plot reveals about the relationship between exam scores (describe the plot).
3. Calculate the correlation for Class J. Does this value surprise you? How?